

REMARKS

Claims 1, 2, 4-36, 38 and 41-75 are currently pending in the subject application and are presently under consideration.

Applicants' representative thanks Examiner Wilbert Starks for the courtesies extended during the Interview conducted on February 19, 2008, during which the subject matter of the pending claims and various proposed claim amendments to more clearly recite the novel aspects of the invention were discussed. In view of the Examiner's recommendations, claims 1, 4, 36, 46, 50, 53, 59, 62-64, 66, 69, 71, and 73-75 have been amended herein to more clearly recite the patentable subject matter of the pending claims. Entry of the amendments is respectfully requested since they remove issues in the event of an appeal, do not require further searching, and/or place the subject application in condition for allowance. Claims 3, 37, 39, 40 and 76 were previously cancelled.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 1-36, 38 and 41-75 Under 35 U.S.C. §101

Claims 1-36, 38 and 41-75 stand rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. Withdrawal of this rejection is respectfully requested for at least the following reasons. The claimed subject matter as a whole produces a *useful, concrete and tangible result*.

Patentable subject matter is defined by 35 U.S.C. §101, which reads as follows:

[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Summarizing the Supreme Court decisions interpreting 35 U.S.C. §101, the Federal Circuit has stated:

The Supreme Court has construed §101 broadly, noting that Congress intended statutory subject matter to "include anything under the sun that is made by man." *See Diamond v. Chakrabarty*,

447 U.S. 303, 309 (1980) (quoting S. Rep. No. 82-1979, at 5 (1952); H.R. Rep. No. 82-1923, at 6 (1952)); *see also* *Diamond v. Diehr*, 450 U.S. 175, 182 (1981). Despite this seemingly limitless expanse, the Court has specifically identified three categories of unpatentable subject matter: "laws of nature, natural phenomena, and abstract ideas." *See Diehr*, 450 U.S. at 185.

(*AT&T*, 172 F.3d at 355).

To determine whether subject matter is patentable, the Federal Circuit has adopted the test articulated in its *en banc* decision *In re Alappat*, 33 F.3d 1526, 31 U.S.P.Q.2d 1545 (Fed. Cir. 1994) (*en banc*) – whether the claimed subject matter as a **whole** achieves a **useful, concrete and tangible result**. (See *In re Alappat* 33 F.3d at 1544, 31 U.S.P.Q.2d at 1557; *see also* *State Street*, 149 F.3d at 1373, 47 U.S.P.Q.2d at 1601; and *AT&T*, 172 F.3d at 1359-61, 50 U.S.P.Q.2d at 1453-54). The *Alappat* test is founded in the Supreme Court's ruling in *Diehr*. (See *In re Alappat*, 33 F.3d at 1543-45, 31 U.S.P.Q.2d at 1556-58; *see also* *State Street*, 149 F.3d at 1373-74, 47 U.S.P.Q.2d at 1600-02; and *AT&T*, 172 F.3d at 1356-58, 50 U.S.P.Q.2d at 1450-52). Regarding inventions that include mathematical algorithms, the Federal Circuit has characterized the *Alappat* inquiry as:

simply requir[ing] an examination of the contested claims to see if the claimed subject matter **as a whole** is a disembodied mathematical concept representing nothing more than a "law of nature" or an "abstract idea," or if the mathematical concept has been reduced to some practical application rendering it "**useful**."

(*AT&T*, 172 F.3d at 1357, 50 U.S.P.Q.2d at 1451) (emphasis added). Thus, after the Supreme Court's rulings in *Diehr* and the Federal Circuit's rulings in *Alappat*, *State Street*, and *AT&T*, the proper test to be applied to determine patentable subject matter is whether the subject matter as a **whole** produces a **useful, concrete and tangible result**. (See *In re Alappat*, 33 F.3d at 1543-45, 31 U.S.P.Q.2d at 1556-58; *see also* *State Street*, 149 F.3d at 1373-74, 47 U.S.P.Q.2d at 1600-02; and *AT&T*, 172 F.3d at 1357-38, 50 U.S.P.Q.2d at 1450-52).

It is respectfully submitted that the subject claims go beyond manipulation of merely abstract ideas and produce useful, concrete and tangible results.

Claims 1, 2, and 4-35:

Independent claim 1, from which claims 2 and 4-35 depend, recites *a computer-implemented method comprising **allocating each of a plurality of ads to at least one of a plurality of clusters, based on a predetermined criterion** accounting for at least a quota for each ad and a constraint for each cluster, **selecting an ad for a current cluster** from ads allocated to the current cluster; and **effecting the selected ad, the predetermined criterion increases an actuation occurrence of the effected ad.*** Actuating an ad, in a web-based context, refers to a user clicking on the ad. (See e.g., pg. 12, lns. 17-20 and pg. 24, lns. 11-13.) In one example, advertisers pay to have their ads served in such a manner that the ads are likely to be “clicked on” or actuated. (See e.g., pg. 1, lns. 19-21.) Increasing an actuation occurrence of the effected ad, as claimed, is useful, concrete, and tangible because such increased actuation can increase revenue generated from web advertising as one example of a practical application. (See e.g., pg. 1 lns. 22-24.)

Based on at least the above, claim 1 (and the claims that depend there from) as a whole produces a useful, concrete and tangible result and, as such, the claims are directed to statutory subject matter.

Claims 36, 38 and 41-45:

Independent claim 36 (from which claims 38 and 41-45 depend) *a computer-implemented method comprising **defining a plurality of clusters, each cluster corresponding to a group of users who are most receptive to a given type of ad, ... allocating an ad having a particular type to at least one cluster based on the particular type of the ad and based on a predetermined criterion to maximize the number of click throughs of the allocated ad, and outputting the allocated ad to the group of users.*** The subject matter of claim 36 relates to maximizing the number of click throughs of an allocated ad by defining clusters that each correspond to a group of users most receptive to a given type of ad and outputting an ad allocated to the group of users. In an example, maximizing the number of click throughs of an ad can maximize earning potential from advertising, which is a concrete, tangible, and useful result. (See e.g., pg. 3, lns. 17-19.)

Thus, based on at least the foregoing, the method recited in claim 36 (and accordingly claims 38 and 41-45), as a whole, produces a concrete, tangible and useful result and is directed

toward statutory subject matter. Accordingly, this rejection should be withdrawn.

Claims 46-49:

Independent claim 46, from which claims 47-49 depend, recites *a computer-implemented method comprising **determining an allocation for each of a plurality of ads to at least one of a plurality of clusters ... and outputting the allocation of each ad to at least one of the plurality of clusters, the allocation provides a preference to at least one of the plurality of ads.***

Providing a preference to at least one of the plurality of ads can, in one example, give a preference to some advertisers (*e.g.*, ads) and greater revenue on a per-displayed ad or per-clicked through ad basis can be realized by performing the method. (*See e.g.*, pg. 16, lns. 18-20). Thus, the claim recites at least one real-world concrete, tangible, and useable result.

Accordingly, claims 46-49 produce a useful, concrete, and tangible result and are directed toward statutory subject matter and this rejection should be withdrawn.

Claims 50-52:

Independent claim 50, from which claims 51 and 52 depend, recites *a computerized system comprising **a database storing a plurality of ads, each ad having an item purchase quota, an allocator to allocate each of the plurality of ads to at least one of a plurality of clusters, based on a predetermined criterion accounting for at least the item purchase quota for each ad and a constraint for each cluster; and a communicator to select an ad for a current cluster from ads allocated to the current cluster and output the ad to a user.*** The subject matter of claim 50 recites a system that includes a database, an allocator, and a communicator, which clearly falls within at least one of the four enumerated categories of patentable subject matter recited in 35 U.S.C. § 101. Further, the claim relates to selecting an ad from a plurality of ads allocated based, in part, on an item purchase quota and outputting the ad to a user. A practical application of the claim relates to displaying ads to users in clusters based on the maximization that a user will purchase the displayed product or service, not just click on the ad. (*See e.g.*, pg. 18, lns. 16-17.)

Based on at least the above, independent claim 50 and dependent claims 51 and 52 produce a useful, concrete, and tangible result and relate to patentable subject matter. Therefore, this rejection should be withdrawn.

Claims 53-58:

Independent claim 53, from which claims 54-58 depend, recites *a machine-readable medium having instructions stored thereon for execution by a processor to perform a method comprising allocating each of a plurality of ads to at least one of a plurality of clusters, based on a predetermined criterion accounting for at least a quota for each ad and a constraint for each cluster, the quota for each ad is an ad display quota, selecting an ad for a current cluster from ads allocated to the current cluster, and displaying the ad to achieve the ad display quota.*

Independent claim 53 recites structure in a machine-readable medium having instructions stored thereon for execution by a processor to perform a method, which clearly falls within at least one of the four enumerated categories of patentable subject matter recited in 35 U.S.C. § 101. Further, claim 53 recites *allocating* each of a plurality of ads based, in part, on at least a quota for each ad where the quota is an ad display quota and *selecting* an ad and *displaying the ad to achieve the ad display quota*. In an example of a practical application, the ad display quota can be dictated by advertising contracts that must be fulfilled. (See *e.g.*, pg. 2, lns. 9-12.) The ad display quota can also be that an ad should not be displayed in a current cluster, such as if the current cluster is a child oriented cluster and the ad relates to adult content. (See *e.g.*, pg. 3, ln. 20 to pg. 4, ln. 4; and pg. 17, ln. 20-23.) Thus, the selection and display of ads to achieve an ad display quota is a concrete, tangible, and useful result.

Based on at least the above, it is requested that the rejection of claims 53-58 be withdrawn.

Claims 59-61:

Independent claim 59, from which claims 60 and 61 depend, recites, *a machine-readable medium having instructions stored thereon for execution by a processor to perform a method comprising determining an allocation for each of a plurality of ads to at least one of a plurality of clusters, given a constraint ...and outputting the allocation of each ad to at least one of the plurality of clusters, the allocation provides a preference to at least of the plurality of ads.* The machine-readable medium having instructions stored thereon for execution by a processor recited in the independent claim clearly falls within at least one of the four enumerated categories of patentable subject matter recited in 35 U.S.C. § 101. Further claim 59, relates to

allocating a plurality of ads to provide a preference to at least one of the ads and outputting the allocation of each ad to one or more of the plurality of clusters. In one example, the claim as a whole reduces to a practical application by providing a preference to an ad so that greater revenue can be obtained based on a per-displayed ad or a per-clicked through ad basis from an advertiser of the preferred ad. (See *e.g.*, pg. 16, lns. 18-20.)

Thus, claim 59 (and claims 60 and 61), as a whole, produces a concrete, tangible, and useful result. This rejection should be withdrawn because the claims are directed toward statutory subject matter.

Claims 62-68:

Independent claim 62, from which claims 63-68 depend, recites *a computer-implemented method comprising applying each of at least one first item to an ordered set of rules, **each rule accounting for a click-through rate quota for each of a plurality of ads, to determine an ad for each of the at least one first item, and effecting the ad for each of the at least one first item to achieve the click-through rate quota.*** In an example, achieving the click-through rate quota for each of the plurality of ads can maximize earning potential from advertising, which is a concrete, tangible, and useful result. (See *e.g.*, pg. 3, lns. 17-19.)

In view of at least the foregoing, it is readily apparent that the subject claims are directed toward statutory subject matter, and, thus, this rejection should be withdrawn.

Claims 69 and 70:

Independent claim 69, from which claim 70 depends, recites *a computer-implemented method for inventory management comprising **determining at least one significant correlation between a plurality of binary features of training data and a plurality of activation of items from the training data, determining an ad and at least one binary feature providing a largest activation, each rule accounting for at least a quota for the item, generating a rule based on the ad and the at least one binary feature providing the largest activation and removing records from the training data matching the rule generated and repeating to generate another, lower-ordered rule while at least one significant correlation still exists.*** The binary features can be expressed as either “yes” or “no”, “true” or “false” and so forth. (See *e.g.*, pg. 28, lns. 20-24.) The activation of items can be click-through rates, for example. (See *e.g.*, pg. 29, lns. 18-19.) The

claimed method manages an inventory of items by generating, based on training data, an ordered set of rules. Thus, where there is an inventory of items to manage the claim produces a concrete, usable, and tangible result by applying the ordered set of rules to the items to be managed.

Based on at least the above, claim 69, as a whole, reduces to practical application a concrete, useful and tangible result. Thus, it is requested that this rejection be withdrawn.

Claims 71-74:

Independent claim 71, from which claims 72-74 depend, recites *a machine-readable medium having instructions stored thereon for execution by a processor to perform a method comprising applying each of at least one first item to an ordered set of rules, each rule accounting for at least a quota for each of a plurality of second items, to determine a second item for each of the at least one first item and effecting the second item for each of the at least one first item.* The subject matter of claim 71 recites a machine-readable medium having instructions stored thereon for execution by a processor to perform a method, which clearly falls within at least one of the four enumerated categories of patentable subject matter recited in 35 U.S.C. § 101. Further, the subject matter of claim 71, applies rules for items to be managed, which is a concrete, usable, and tangible result.

Therefore, it is submitted that the rejection of claims 71-74 should be withdrawn.

Claim 75:

Independent claim 75 recites, *a machine-readable medium having instructions stored thereon for execution by a processor to perform a method comprising determining at least one significant correlation between a plurality of binary features of training data and a plurality of activations of an item from training data, determining an ad and at least one binary feature providing a largest activation, each rule accounting for at least a quota for the item, generating a rule based on the ad and the at least one binary feature providing the largest activation. removing records from the training data matching the rule generated, and repeating to generate another, lower-ordered rule while at least one significant correlation still exists.*

Claim 75 recites a machine-readable medium having instructions stored thereon for execution by a processor to perform a method, which clearly falls within at least one of the four enumerated categories of patentable subject matter recited in 35 U.S.C. § 101. Further, the

subject matter of claim 75, applies rules for items to be managed, which is a concrete, usable, and tangible result.

Based on at least the above it is requested that the rejection of claims 75 be withdrawn.

II. Rejection of Claims 1-36, 38 and 41-76 Under 35 U.S.C §112

Claims 1-36, 38 and 41-76 stand rejected under 35 U.S.C §112, first paragraph, because current case law (and accordingly, the MPEP) require such a rejection if a §101 rejection is given because when Applicant has not in fact disclosed the practical application for the invention, as a matter of law there is no way Applicant could have disclosed *how* to practice the *undisclosed* practical application. This rejection should be withdrawn for at least the following reasons.

Applicants submit that that claims 1-36, 38 and 41-76 comply with the requirements of 35 U.S.C. §101 and, therefore, also comply with the requirements of 112. As discuss above, claims 1-36, 38 and 41-76 are patentable under §101. Thus, claims 1-36, 38 and 41-76 are also patentable under §112.

Based on at least the above, it is requested that this rejection be withdrawn and the subject claims allowed.

III. Rejection of Claims 1-2 Under 35 U.S.C. §102(e)

Claims 1-2 stand rejected under 35 U.S.C. §102(e) as being anticipated by Ballard (U.S. Patent Number 6,182,050.) This rejection should be withdrawn for at least the following reasons. Ballard does not teach or suggest all claim limitations.

Independent claim 1 (from which claim 2 depends) recites *a computer-implemented method comprising allocating each of a plurality of ads to at least one of a plurality of clusters, based on a predetermined criterion accounting for at least a quota for each ad and a constraint for each cluster, selecting an ad for a current cluster from ads allocated to the current cluster, and effecting the ad, the predetermined criterion increases an actuation occurrence of the effected ad.* The quota relates to the number of times an ad must be shown. (See e.g., pg. 3, ln. 6; pg. 14, ln. 1). The constraint relates to the number of times the ad can be shown. (See e.g., pg. 3, ln. 7; pg. 14, ln. 4). Allocating each of the ads to at least one of a plurality of clusters takes into account the quota and the constraint. An ad from the allocated ad is selected and effected to increase an actuation occurrence of the effected ad. Ballard does not

expressly nor inherently describe such novel features.

Instead, Ballard relates to advertisement distribution *based on demographic data*. (See *e.g.*, col. 9, lns. 39-48). These demographics are characteristics of human populations and population segments and can include hobbies, interest, credit history, travel history and past purchasing history. (See *e.g.*, col. 1, lns. 21-33 and col. 7, lns. 3-13). However, Ballard fails to teach or even suggest accounting for at least a quota for each ad and a constraint for each cluster nor does Ballard teach or suggest utilizing a predetermined criterion to increase an actuation occurrence of the effected ad, as claimed.

Since Ballard does not expressly or inherently describe all limitations recited in the subject claims this rejection should be withdrawn and the subject claims allowed.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [MSFTP222USB].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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